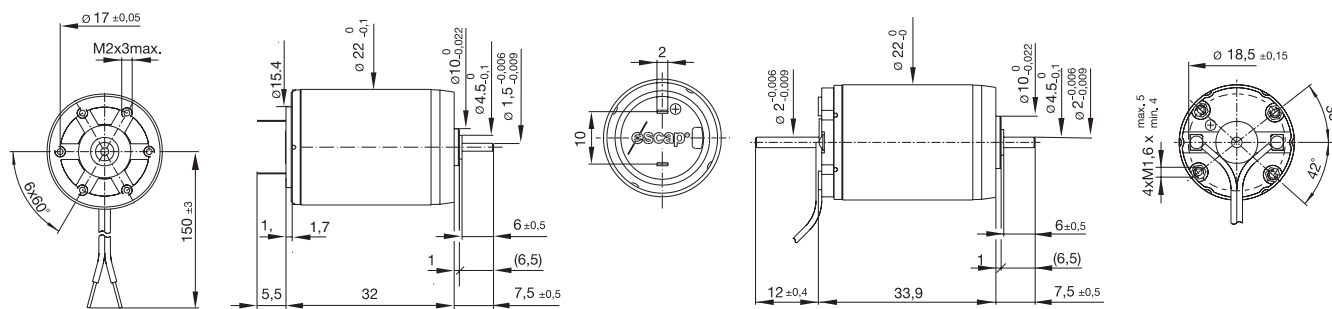


Max screw torque 130 mNm

Max traction 300N



dimensions in mm
mass: 53 g

22N28 ☉☉ • 286

22N48 ☉☉ • 308

Winding Type

☉☉

-216P

-216E

-213E

-210E

-208E

-105

Measured Values

Measuring voltage	V	3.0	6.0	9.0	12.0	18.0	36.0
No-load speed	rpm	5200	5600	7000	5900	6300	7200
Stall torque	mNm (oz-in)	10.9 (1.54)	10.6 (1.50)	10.7 (1.51)	8.6 (1.21)	8.2 (1.16)	8.5 (1.20)
Average No-load current 1)	mA	12.6/27	7.0/14	6.0/11	3.5/7	2.5/5	1.4/3
Typical starting voltage 1)	V	0.03/0.25	0.05/0.35	0.06/0.45	0.08/0.5	0.12/0.7	0.24/0.90

Max. Recommended Values

Max. continuous current	A	1.50	0.83	0.62	0.38	0.26	0.14
Max. continuous torque	mNm (oz-in)	8.1 (1.15)	8.4 (1.19)	7.5 (1.06)	7.3 (1.04)	7.0 (0.98)	6.6 (0.93)
Max. angular acceleration	10 ³ rad/s ²	100	96	107	98	96	132

Intrinsic Parameters

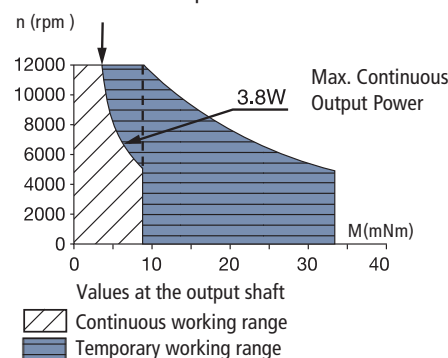
Back-EMF constant	V/1000 rpm	0.57	1.07	1.28	2.02	2.83	4.95
Torque constant	mNm/A (oz-in/A)	5.44 (0.77)	10.2 (1.45)	12.2 (1.73)	19.3 (2.73)	27.0 (3.83)	47.3 (6.69)
Terminal resistance	ohm	1.50	5.80	10.3	27.0	59.0	200
Motor regulation R/k ²	10 ³ /Nms	51	56	69	73	81	90
Rotor inductance	mH	0.10	0.35	0.50	1.20	2.30	7.00
Rotor inertia	kgm ² 10 ⁻⁷	3.50	3.50	2.80	3.00	2.90	2.00
Mechanical time constant	ms	18	19	19	22	23	18

1) Single Shaft/double shaft

Executions

Gearbox	Page	Single Shaft		
		22N28	For F16	For E9
R22	105	286	286	308
M22	106	286	286	308
K24	107	286	286	308
K27	108	286	286	308
RG1/8	111	204	204	310
RG1/9	112	204	204	310
K38	110	204	204	310
L10	115	204	204	310

- Thermal resistance: rotor-body 6°C/W, body-ambient 22°C/W
- Thermal time constant - rotor / stator: 9 s / 550 s
- Max. rated coil temperature: 100°C (210°F)
- Recom. ambient temperature range: -30°C to +65°C (-22°F to +150°F)
- Viscous damping constant: 0.1 x 10⁻⁶ Nms
- Max. axial static force for press-fit: 150 N
- End play: ≤150 µm
- Radial play: ≤30 µm
- Shaft runout: ≤10 µm
- Max. side load at 5 mm from mounting face:
 - sleeve bearings 3 N
 - ball bearings 6 N
- Motor fitted with sleeve (ball bearings optional)

Max. Recommended Speed

DANAHER MOTION is a trademark of Danaher Corporation. Danaher Motion makes every attempt to ensure accuracy and reliability of the specifications in this publication. Specifications are subject to change without notice. Danaher Motion provides this information "AS IS" and disclaims all warranties, express or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose. It is the responsibility of the product user to determine the suitability of this product for a specific application. ©2004 Danaher Motion.